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Artist's impression (not to scale) of the Rosetta spacecraft, its lander, Philae, and Comet 67P (ESA)

ROSETTA AWAKES

A space control room in Darmstadt, in southern Germany, received a signal just after six o'clock in the evening on 20th January. When it arrived all the controllers clapped and cheered. The short signal had taken eight hours to travel a distance of 800 million kilometres (497 million miles). Its arrival confirmed that, after 31 months of **hibernation** in deep space, Rosetta had 'woken up'.

The Rosetta space mission is one of the most **complicated** ever planned. Rosetta is an unmanned spacecraft. The European Space Agency (ESA) designed and built it. Rosetta was launched on top of a powerful rocket in March 2004, nearly ten years ago. Inside the spacecraft is a small lander called Philae. If the ESA's plan works, in eight months' time this lander will attach itself to a speeding comet. This has never been done before.

The comet's official name is 67P/Churyumov-Gerasimenko. Two Russian astronomers discovered it in 1969. The comet is about 4.5 kilometres (2.8 miles) across. The figure '67' is the comet's list number. These numbers are given by an organisation in the USA called the Minor Planet Center. This organisation collects information on all known asteroids and comets. The 'P' in the comet's name shows it is a periodic comet.

Asteroids are lumps of space rock. Comets are different. They are made of ice and dust. Comets are often described as large 'dirty snowballs'. Like the planets in our Solar System, comets orbit the Sun. Yet they take far longer to do so. Comets with an orbit of less than 200 years are known as periodic, or short-period, comets. Those with orbits longer than 200 years are called long-period comets.

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Short-period comets like 67P are thought to come from a part of the Solar System called the Kuiper belt. This is beyond the orbit of Neptune and the dwarf planet Pluto. Long-period comets are believed to originate from a place about 1,000 times farther away. This region is known as the Oort cloud.

Comets have a nucleus, or solid centre. It's mainly made from frozen water. Yet the nucleus is also thought to contain other chemicals. These probably include ammonia, carbon dioxide and methane.



Artist's impression of Philae after landing on the comet's surface (ESA)

When in deep space, comets are completely frozen. As they get nearer to the Sun they start to warm up. Comets then begin to release dust and gases. These create what's known as a coma. This is a cloudy atmosphere around the comet's nucleus. Comets seem to light up as their comas absorb heat from the Sun. At this time a long 'tail' can be seen trailing behind them.

The ESA's spacecraft is named after the Rosetta Stone. This ancient artefact was found in Egypt over 200 years ago. Carved on the stone are three different translations of the same text. One is in Egyptian hieroglyphs. Another is Demotic script. (This was an 'everyday' old Egyptian language.) The third language is Ancient Greek.

In the 1820s, Jean-François Champollion, a French scholar,

studied the Rosetta Stone. It helped him to decipher, or work out how to read, Ancient Egyptian hieroglyphs. The Rosetta Stone is kept in the British Museum, in London, the capital of the UK.

The ESA organised a competition to find a name for Rosetta's lander. A teenage girl from Italy won. She suggested 'Philae'. There was an island called Philae in the middle of the River Nile, in Egypt. On this island were the ruins of an ancient temple. In 1815 two obelisks were found on the island. Obelisks are tall stone monuments. One obelisk had Egyptian and Ancient Greek writing on it. So the Philae obelisk also helped Champollion to decode Egyptian hieroglyphs.

The Rosetta spacecraft has had a very long journey. After its launch it completed three huge loops or orbits of the Earth. This helped the spacecraft build up speed. Rosetta has also been around the Sun five times. In 2007 it was near Mars. The following year the spacecraft flew close to a two-kilometre (1.25 mile) wide asteroid. Two years later, Rosetta watched as an asteroid 50 times bigger sped past. The spacecraft sent back pictures and other useful information about the two asteroids.

Rosetta uses solar panels to create the power it needs from the Sun. Yet by 2011 the spacecraft was not able to make enough energy to keep operating. This was because it was too far away from the Sun. Then, as part of the ESA's plan, Rosetta was deliberately closed down and put to 'sleep'. Its 'alarm clock' was set for ten o'clock on 20th January 2014. Soon after Rosetta woke up it would start to move towards 67P, as the comet began to travel towards the Sun.

For the next three months the controllers will be switching on and testing all Rosetta's equipment. The spacecraft will move towards the comet at around 3,500 kilometres (2,175 miles) per hour. In May, as it approaches 67P, it will slow down. Once close enough Rosetta will begin to orbit the comet. At this stage the spacecraft will be about 20 kilometres (12.5 miles) above the comet's surface.

As it orbits, Rosetta will photograph and map 67P's surface. The spacecraft will be looking for an area on which Philae can land safely. This may be difficult, as the comet's surface is unlikely to be flat. By this time Rosetta would have travelled a total distance of 7.1 billion kilometres (4.4 billion miles).

In November, Rosetta will move much closer to 67P. Then, Philae will be launched. ESA controllers say this will be the most difficult part of their plan. The comet will be moving quickly and its gravity is very weak. There is a danger of Philae 'falling off'. To stop this from happening the lander will fire two [harpoons](#) at the comet. After Philae lands, big screws on each of its four legs will drill into the icy surface.

Comets like 67P date back to the beginning of the Solar System, 4.6 billion years ago. This was when planets such as the Earth were just starting to form. So, studying a comet's chemicals and gases is like looking back in time.

Philae has ten special instruments on board. These have been designed to work out what the comet is made of. Scientists hope that this information will help to answer several important questions. Three are: where did all the Earth's water come from, and how and where did life first begin? ■

UKRAINE'S EUROMAIDAN

Another huge demonstration took place in Kiev, Ukraine's capital city, on 19th January. Hundreds of thousands of people filled the streets in the centre of the city. The protesters said they were angry about a new set of rules, or laws. These had been voted on and passed by the country's parliament several days before.



Euromaidan in Kiev

For the last two months there have been many anti-government protests in Kiev. During the weekends the demonstrations get much larger. Some protesters have put up, or erected, tents in a large square in the centre of the city. Stages and barriers, or barricades, have been set up. The stages have been used for speeches and music concerts.

The new laws say that tents and stages can no longer be erected in public places. **Amplifiers** cannot be used. Any demonstrators wearing masks or helmets can be arrested. Any protests that include more than five cars or trucks are banned. Anyone caught breaking these laws will have to pay a large fine or go to prison. The protesters have nicknamed the new rules 'dictatorship laws'.

The demonstrations started because of a proposed agreement, or deal, between Ukraine and the European Union (EU). This deal would make it easier for Ukraine and the EU's 28 member countries to trade with each other. A few days before

the agreement was to be signed Viktor Yanukovich, Ukraine's president, made a surprise announcement. He declared that a deal would not be made with the EU. Instead Ukraine would have a different trade agreement with Russia.

For many years Ukraine was part of the Russian-led Soviet Union. It became an independent country in 1991. This was when the Soviet Union began to break up. However, Ukraine still relies on Russia for many things.

Ukraine has two main political groups. Mr Yanukovich leads one. He has many supporters. The last election was in 2010. Now the majority of the people elected to the country's parliament belong to Mr Yanukovich's political group. Many of the president's supporters live in eastern Ukraine. Most of them are happy for Ukraine to work closely with Russia.

The other political group's supporters come mainly from the western part of the country. These are the people who have been demonstrating. They want Ukraine to be **associated** with Europe and not Russia. The protesters are now demanding that a new election be held.

The protesters call their demonstrations 'Euromaidan'. *Maidan Nezalezhnosti* is a large open area, or square, in the centre of Kiev. (*Nezalezhnosti* means independence and *maidan* is a square.) In the latest demonstrations many protesters continued to wear masks. As helmets are now banned, some put metal cooking pots on their heads.

Other countries have become worried about what is happening in Ukraine. Russian leaders have blamed the EU. They accuse EU officials of encouraging Ukrainians to take part in the demonstrations.

On 22nd January there were battles between some of the protesters and the police. This happened after the police tried to remove several barricades. On the same day Mr Yanukovich held talks with three opposition leaders. However, most think he is unlikely to agree to a new election. ■

SHRINKING MOUNTAIN

Scientists have discovered that the tallest mountain in New Zealand is shorter than it used to be. Using GPS devices and photographs taken from aircraft they worked out that the height of Aoraki/Mount Cook is 3,724 metres (12,217 feet). This means the mountain is 30 metres (98 feet) shorter than it was about 20 years ago.



Aoraki/Mount Cook in New Zealand

Aoraki/Mount Cook is on New Zealand's South Island. It is part of the Southern Alps mountain range. The mountain was known as Mount Cook. Yet nowadays many people call it Aoraki. This is the mountain's Maori name.

The Maori are the native people of New Zealand. They first settled on the country's two main islands around 800 years ago. The Maori are believed to have originally come from several Polynesian islands. Polynesia is the name used to describe over 1,000 islands in the central and southern Pacific Ocean. In the past many of the people who

lived on these Pacific islands were expert sailors. They used the stars in the night sky to navigate, or work out which way to travel.

The Maori called the mountain Aoraki long before the first Europeans arrived in New Zealand. A Dutch ship's captain called Abel Tasman is believed to be the first person from Europe to see the mountain in 1642. The Tasman Sea (the sea between New Zealand and Australia) is named after him.

It was not until the early 1800s that large numbers of Europeans moved to New Zealand. Most came from the UK. In 1840 Maori leaders and officials from the UK signed an agreement. This is known as the Treaty of Waitangi. The treaty officially made New Zealand part of the British Empire. In return the government of the UK said it would protect the Maori people's rights to their lands.

In 1851 a British sea captain named the mountain Mount Cook. He chose this name to honour Captain James Cook (1728 – 1779). Captain Cook was a very good cartographer, or mapmaker. He went on long voyages to map areas of the world that were new to Europeans.

Captain Cook's ship was called the *Endeavour*. During a voyage between 1767 and 1771 it became the first European ship to sail all the way around New Zealand. Captain Cook made very accurate maps of the country's two main islands.

Aoraki/Mount Cook has three peaks. They are called the Low, Middle and High Peaks. In 1991 there was a rock fall just below the High Peak. A large amount of ice and rock broke away.

The ice cap on top of the mountain was not affected by this rock fall. However, the shape of the mountain just below the ice cap

changed. Because of this change the ice cap has eroded, or worn away, quite quickly over the last 20 years. The scientists who recently measured the mountain think this is why Aoraki/Mount Cook is now shorter than it used to be. Even though it has lost height the mountain is still the tallest in New Zealand. ■

NEW CAR LEADER

On 20th January Catherine Samba-Panza was chosen to be the new interim, or temporary, leader of the Central African Republic (CAR). She is a former mayor of Bangui, the country's capital city. Other members of the CAR's National Assembly, or parliament, voted for Ms Samba-Panza.



On the same day senior politicians from several European Union (EU) member countries made an announcement. They said the EU would send 500 soldiers to the CAR. Troops from France and the African Union (AU) are already in the country. However, these soldiers are finding it difficult to stop the fighting between Christian and Muslim groups. When different religious groups attack one another it is called sectarian violence.

The CAR used to be a French colony. Since it became independent in 1960 the country has had many problems. At the end of 2012 fighting broke out. A group called

the Séléka Coalition seized control of some northern areas. In the local language Séléka means 'alliance'. As they approached the capital city, Francois Bozize, the CAR's president, fled from the country.



Catherine Samba-Panza, CAR's interim leader

About 4.6 million people live in the CAR. Most are Christian. Yet those fighting for the Séléka were Muslims. Eventually, Michel Djotodia took over as the country's leader. He was the commander of the Séléka Coalition. Mr Djotodia wanted the people who had been fighting for Séléka to give up their weapons. Yet most refused to do so. They then began attacking Christian groups.

For several years France kept around 400 troops in the CAR. They were based in Bangui. Their job was to protect the airport and any French people who lived in the city. Two months ago, François Hollande, the French president, decided to send another 1,600 soldiers to the CAR. At the same time, because of the sectarian violence, the AU said it would also send more troops. Now there are about 4,400 AU soldiers in the country.

Officials from the United Nations (UN) are worried about the CAR. They fear a humanitarian disaster. Hundreds have been killed. Nearly 20% of the population, or about one million people, have left their homes to get away from the violence.

Mr Djotodia was the first Muslim to lead the CAR. On 11th January a

meeting was held in Chad, a nearby country. The meeting was arranged to discuss the problems in the CAR. Officials from other countries such as Cameroon and the Republic of Congo attended. Mr Djotodia was also invited. During the meeting the other countries persuaded Mr Djotodia to stand down. They argued that the violence in the CAR was unlikely to stop while he was in charge.

As part of the arrangement the CAR's parliament would choose a new interim leader. Then, once the violence stops, new elections will be held.

After she was selected as the CAR's new leader Ms Samba-Panza made a request. She asked African and European countries to send more peacekeeping soldiers. This, she said, is the only way to end the sectarian violence. ■

BIRD-CATCHING FISH

Researchers in South Africa have recorded an unusual sight. They managed to film fish that can catch birds flying over the water. Some fish species are known to prey on birds that land and float on water. But this is the first time that fish have been recorded catching birds in flight.

The fish are called African tigerfish. They live in many freshwater lakes and rivers in Africa. Adult males are around 105 centimetres (41 inches) long. Females are a little smaller. Tigerfish have a silver coloured body with thin, black horizontal stripes. The fish have very sharp teeth. They are a predatory species. This means they feed on other smaller fish.

In the past some people claimed to have seen African tigerfish leap out of the water. There have also

been reports of birds disappearing as they flew over lakes. Yet until now there has never been a recording of a fish catching a flying bird.

Last year the researchers decided to study some of the tigerfish that live in a reservoir, or man-made lake. They hoped to discover how far the fish swam and which parts of the lake, or habitats, they preferred.



Tigerfish

The researchers managed to put tracking devices, or radio tags, on some of the fish. These tags showed that tigerfish normally preyed on other fish very early in the morning and in the evening. In between these times the fish mostly rested in deep, sheltered parts of the lake.

However, when summer arrived the researchers noticed that the tigerfish did something different. Late in the morning they swam to the middle of the lake. The fish seemed to be attracted by flying birds. These birds are barn swallows. Swallows fly very quickly and feed on insects. They feed 'on the wing' or in flight. So, as they flew over the lake, the birds were catching insects.

The researchers were surprised to see a tigerfish suddenly leap out of the water and catch one of the swallows. This, they say, cannot be easy to do because the swallows are very fast. The researchers managed to film some of the 'fish strikes'. In one day it was not unusual for tigerfish to catch as many as 20 birds.

Several other species of freshwater fish are known to catch birds. These include types of catfish, pike, piranhas, and eels. Yet the birds they catch are either next to the water's edge or floating on it. African tigerfish are the first, and so far only, fish to have been recorded catching flying birds. ■

STATE OF EMERGENCY IN THAILAND

Government ministers in Thailand attended a special meeting on 21st January. Afterwards it was announced that a state of emergency, or emergency rule, had been declared. The decree, or special order, relates to Bangkok, the capital city, and some of the surrounding areas. Emergency rule in this part of Thailand will last for 60 days.



Anti-government protest in Bangkok

Normally governments will only declare emergency rule if there is a very serious problem. For example, if a war has started or violence has broken out between two opposing groups. Another reason could be natural disasters such as earthquakes, powerful storms or serious flooding.

Often a government will send military forces to the place where there is a state of emergency. When this happens **curfews** are declared and some freedoms withheld. Large meetings or demonstrations are banned. Radio, television and newspaper reports can

be censored. This continues until the government announces that the state of emergency is over.

For several months there have been large anti-government protests in Bangkok. Yingluck Shinawatra leads the government. She became Thailand's prime minister after her party, the Pheu Thai Party (PTP), won the last election in 2011. Ms Yingluck is Thailand's first woman prime minister. Many people support her and the PTP. Yet most of them live outside the larger cities.



Thailand's prime minister, Yingluck Shinawatra

The largest opposition group in the Thai parliament is the Democrat Party. Most of the anti-government protesters support this party. Yet the Democrat Party has not won an election for 13 years. Suthep Thaugsuban leads the protesters. He used to be a member of the Democrat Party and is a former deputy prime minister.

Ms Yingluck is the youngest sister of Thaksin Shinawatra. He was prime minister from 2001 to 2006. Mr Thaksin was deposed by the army. After this he left Thailand. Army commanders then ran the country for about a year. Mr Thaksin now lives in exile, in Dubai. In the meantime he has been convicted of corruption, or dishonesty, by a court in Thailand.

Mr Thaksin is very wealthy. He was a successful businessman

before he became prime minister.. Political parties that were supported by wealthy people and the military nearly always ran Thailand. Mr Thaksin changed this. He set up a new political party. Mr Thaksin said his party would help poorer people, especially in the countryside.

The anti-government protesters dislike Mr Thaksin. They accuse him of making the political system in Thailand corrupt. The leaders of the protests insist that he is still running the country. They say he does this by giving orders to his younger sister.

At the beginning of December Ms Yingluck agreed to dissolve, or close down, the parliament. This was so a new election can take place. It is expected to be held on 2nd February. However, the Democrat Party has already said it will refuse to take part.

The protest leaders say they do not want another election. Most people think this is because the Democrat Party is unlikely to win. Leaders of the protests say Ms Yingluck should leave Thailand. They want a senior group of people to be appointed. This unelected group would then govern the country.

On 20th January, someone threw a grenade at a group of protesters. Twenty-eight were injured. Government ministers say they decided to declare emergency rule to prevent further violence. Ms Yingluck said the police and not the army would organise the state of emergency. ■

NEW PYRAMID THEORY

For hundreds of years people have argued about how the largest pyramids in Egypt were built. Most archaeologists believe they were constructed by hundreds of thousands of workers. They also say the large stone

blocks, used to build the pyramids, were dragged up very long ramps.

Peter Jones is an engineer from the UK. For the past 18 years his company has been working in Egypt. There, his engineering company has been helping the Egyptian government to repair some of the country's oldest pyramids. These include what's known as the Red Pyramid and the Step Pyramid. These two pyramids were built around 4,600 years ago.



Great Pyramid of Giza

After working on these pyramids for many years, Mr Jones became interested in how they were constructed. He believes he now knows the answer. Mr Jones says he is sure that the archaeologists are wrong.

The Great Pyramid of Giza is the largest of all the pyramids. It is thought to have taken 25 years to build. The outer sides of the pyramid are made from large stone blocks. Each of these blocks weighs about 1.5 tonnes. Inside the Great Pyramid there are several chambers. Passages or galleries connect these chambers. The floor, sides and ceilings of the chambers and passages are also made from large blocks of stone.

Most people think that the whole pyramid is made from these stone blocks. The blocks were placed in layers, one on top of the other. Ropes were used to pull the heavy stone blocks up long ramps. These ramps were made of earth. As the

NewsCAST

ECHO RECORD — Researchers in the UK believe they have discovered a place that has the ‘world’s longest echo’. An echo happens when sound waves bounce off walls or cliffs. This means that the same sound can be heard again and again. Each time the sound becomes fainter until it can no longer be heard. The researchers went inside an old underground building or tank. Many years ago it was used to store fuel. It has thick walls and no windows or doors. The enclosed space is about nine metres (30 feet) wide and the same length as two football pitches. A pistol loaded with blanks was fired near one end of the underground room. The loud noise immediately started to bounce off the walls and ceiling. The echoes went on for 112 seconds, or nearly two minutes. The previous longest recorded echo was 15 seconds.

pyramid got taller the ramps had to be built higher. Archaeologists have worked out that the Great Pyramid probably contains around two million large blocks of stone.

Mr Jones is sure that the Great Pyramid could not have been built this way. If it were completed in 25 years the workers would have had to cut the stone blocks very quickly. The blocks came from a nearby quarry. If the whole pyramid were made of stone blocks, one would have to be cut every three minutes. Furthermore, to get to the top of the pyramid the earth ramp would need to be about 0.8 kilometres (0.5 miles) long. This means the ramp would have been about the same size as the pyramid.

Mr Jones believes that stone blocks were used only around the

outside of the pyramid. The inner part, he says, is made out of rubble. This rubble contains much smaller stones that are all different shapes and sizes. Unlike stone blocks rubble does not need to be cut. It is also much easier to move.

Mr Jones’s theory is that the pyramid’s four outer sides, or walls, were built first. Rubble was then piled up inside them. As the sides got higher more rubble was put on the inside. **Scaffolding** and ropes were used to lift the stone blocks up the sides of the walls. The inner chambers and passages were buried in rubble after they had been constructed.

Mr Jones believes that around 90% of pyramids are rubble. So only 10% are large stone blocks. He describes his theory as ‘building from the inside out’. Whereas most archaeologists believe the pyramids were ‘made from the outside in’. ■

FIRE-JUMPING FESTIVAL

San Bartolomé de Pinares is a small town in Spain. It is home to about 600 people. Each year, on the night of 17th January, the people who live in the town take part in a special festival. This is the night before Saint Anthony’s Day.

In the Christian faith a patron saint is someone who represents a country, a city, a group, an activity (such as mining or travelling) or many other things. Saint Anthony is the patron saint of animals.

San Bartolomé de Pinares is about 100 kilometres (60 miles) from Madrid, Spain’s capital city. On the night before Saint Anthony’s Day people set up piles of wood in some of the town’s streets. These are then set on fire. Then, one by one, about 50 people ride horses towards

the flames. The horses and riders jump over the fires and through the smoke and flames. This annual event is known as the festival of Luminarias (or Illuminations).

No one knows when the festival was first held. Many people in San Bartolomé de Pinares think it is at least 500 years old. They say that around that time a disease, or epidemic, quickly spread through the town. This disease killed all the horses. Every year since this happened the town’s horses have been ridden through fires. The smoke and flames are meant to **purify** the horses, keep evil spirits away and prevent another epidemic.

Before the festival takes place the horses’ manes and tails are tied up, or plaited. This is to stop them catching fire. The riders say that some of the horses seem scared. Yet they do not have to jump through the flames. If the horses try to go around the fires the riders do not stop them.



Luminarias, San Bartolomé de Pinares

In recent years there have been complaints about the festival. People who campaign for animal welfare say it is cruel. They believe the festival should be stopped. Those who live in the town disagree. They say the flames have never hurt any of the horses. The only accidents that have happened are when horses have slipped on the town’s cobblestone streets.

The horse riding is normally over by midnight. Then there is music

and a big party. Often this does not end until the Sun rises on Saint Anthony's Day. Some of the bonfires are used to cook popular locally made sausages and other foods. ■

ARIEL SHARON

Ariel Sharon's funeral was held in Israel on 13th January. The former Israeli general and prime minister, who was 85 years old, died two days earlier. Sharon spent the last eight years of his life in a [coma](#).

Many Israelis respected and admired Sharon. To them he was a war hero and a brave leader. He had fought for their country since it was set up in 1948. However, most people in Arab countries dislike him. They believe Sharon was a war criminal.

Sharon's parents came from Georgia, which was part of the Russian-led Soviet Union. They moved to Palestine in 1922. Later, this region of the Middle East became the state of Israel. Sharon was born in 1928.

In 1948, with help from the USA and the United Nations (UN), the state of Israel was set up in Palestine. The new state was to be a homeland for Jewish people. Thousands of Jews living in Europe moved there. Many of these people had lost members of their families and suffered persecution during the Second World War (1939 – 1945).

When Israel was set up many Palestinians were forced to leave their land and homes. Most had to move to refugee camps in nearby countries. The formation of Israel meant Jewish people had been given their own country. Yet the Palestinians were left without one. Other Arab countries disagreed with what had happened.

Just before Israel became a new nation, Sharon joined a secret, or 'underground', group of fighters. In later years this group became the Israeli Defense Forces (IDF), or Israel's army, navy and air force.

Wars broke out between Israel and the surrounding Arab countries in 1948, 1967 and 1973. Israel, supported by the USA, won them all. It captured the West Bank from Jordan, the Golan Heights from Syria, and the eastern half of Jerusalem. It also occupied the Sinai Desert (part of Egypt) but later handed it back.



Ariel Sharon in 2004

Sharon was a senior military commander in the 1967 and 1973 wars. The forces Sharon commanded were very successful in both conflicts. After his successes in 1973 he was nicknamed 'The King of Israel'. Sharon became a general when he was only 45 years old. Many Israelis believe that he has been their country's greatest military commander.

When he retired from the army Sharon became a politician. In 1982 Israel invaded southern Lebanon. Then, Sharon was the government minister in charge of the IDF. After the invasion there was a [massacre](#) of Palestinian civilians in Lebanon. Other countries criticised Israel for what had happened. Many blamed Sharon.

Sharon was elected as Israel's prime minister in 2001. Within a few years he decided that Israel would have to make a peace agreement with the Palestinians. Sharon said that, in exchange for peace, some of the land controlled by Israel would have to be given up. Many politicians in his party disagreed. In 2005 he set up a new political party called Kadima.

Sharon became seriously ill at the beginning of 2006. He had heart failure and bleeding in the brain. Even though doctors carried out several operations, Sharon remained in a coma for the rest of his life.

On 12th January Sharon's coffin was placed outside the Knesset, in Jerusalem. An Israeli flag covered it. The Knesset is the name of Israel's parliament. The following day the funeral was held at Sharon's family farm. He was buried next to his wife. She died in 2000. ■

VIGILANTES IN MEXICO

On 20th January officials in Mexico said that three senior members of a large drug gang had been captured. The three men belong to a gang, or drug cartel, called the Knights Templar. This drug gang operates in the state of Michoacán.

Six days before the arrests, the Mexican government sent hundreds of troops to Michoacán. This was because fighting had broken out between members of the drug cartel and armed vigilante groups. Vigilantes are ordinary citizens who claim the police and other security forces are not protecting them. Vigilantes try to prevent crimes and [deter](#) people from breaking the law.

For many years Mexico has had serious problems with drug cartels.

These gangs make large amounts of money by smuggling illegal drugs into the USA and other countries. In Mexico there are at least eight large drug cartels. Each operates in a different part of the country.



Protest against drug cartels in Mexico City

The gangs get most of their illegal drugs from countries in South America. Large amounts of these drugs are grown or produced in Colombia and Peru. They include cocaine, heroin and cannabis. After arriving in Mexico many of the drugs are unlawfully taken, or smuggled, into the USA. To do this, the gangs use trucks, boats and even secret tunnels, which are dug under the border.

The Mexican drug cartels frequently fight against each other. Often the violence gets worse after the capture and arrest of a gang leader. This is because other cartels then try to take over that gang's territory.

Officials estimate that since 2006 around 70,000 people have been killed in Mexico's 'drug wars'. Elected officials in different Mexican states who try to stop the cartels are in danger. This is because the drug gangs threaten to kill them. Abductions, or kidnappings, are another frequent crime. Gangs kidnap members of wealthy families and demand money, or a ransom, for their return.

In 2006 the president of Mexico sent thousands of soldiers to some parts of the country. The soldiers'

job was to help the police arrest drug cartel members. However, many people in Mexico believe that some police officers are corrupt or dishonest. These police officers, they say, will agree to help drug gangs if given money, or bribes.

There have been frequent demonstrations in Mexico City, the country's capital, about the drug cartels. Those taking part in these protests say the government must do more to stop the drug gangs.

At the beginning of January thousands of local people in Michoacán began to set up vigilante groups. These groups are armed with guns and rifles. They call themselves self-defence groups. People joined the vigilante groups because they were angry. The Knights Templar, the groups' leaders say, was taking over many of their towns. The vigilantes complained that local police were doing nothing to stop the gang.



Serious fighting has been taking place between the self-defence groups and the Knights Templar. Recently the Knights Templar has been fighting against another drug cartel. Called New Generation, this cartel is based in Jalisco, a nearby state. The Knights Templar accuses the vigilante groups of working with New Generation. However, the self-defence groups insist that this is not true.

After hundreds of troops were sent to Michoacán state, government

officials told the vigilantes to give up their weapons. The groups' leaders refused. They say they need guns to protect themselves. The self-defence groups worry about what might happen in future. The vigilantes say the drug gang will attack them if the soldiers leave. ■

WORLD'S MOST ADMIRER

The Times is a popular newspaper in the UK. On 11th January it published the results of an international survey. The newspaper arranged the survey to find out who is 'the world's most admired person'. Bill Gates, the co-founder and former boss of the Microsoft Company, came top.

The newspaper asked an international market research company called YouGov to do the survey. The company used the internet and people's mobile phones. It asked: who do you personally most admire? Asking people the same question and collecting the results is often called polling.

The survey company polled people in 13 countries. These were the UK, France, Germany, Russia, the USA, Australia, Pakistan, Indonesia, India, China, Egypt, Nigeria, and Brazil. The total number of answers received was around 14,000. The 13 countries were specially chosen. Their populations, when added together, are about half of the world's total. The country with the largest population on each continent is also included.

To create the final list the results from each country were added together. Just over ten percent of those polled said Bill Gates was the person they most admired. Barack Obama, the president of the USA, came second with around nine percent. The

Russian president, Vladimir Putin, was third, and Pope Francis fourth. Pope Francis is the leader of the Roman Catholic Church.

Bill Gates is one of the world's richest people. After being Microsoft's boss for many years, Mr Gates stepped down in 2008. He said he wanted to spend more time working with a charitable foundation that he had set up with his wife. This organisation, which is called The Bill and Melinda Gates Foundation, helps poorer people in many parts of the world. It provides large amounts of money to reduce poverty, find cures for diseases and improve [sanitation](#). The foundation also pays for computer-related education. When wealthy people give money for good causes in this way it is known as philanthropy.

The survey also showed who was the most admired person in each of the 13 countries. Pope Francis came first in several of them including the USA, Germany and Brazil. Mr Gates came sixth in the USA but top in China. Mr Obama was first in France and Indonesia. The American president came second in his own country.



Bill and Melinda Gates (Kjetil Ree)

Apart from Mr Obama and Mr Putin the only other world leader in the top ten was Xi Jinping. He is the president of China. Warren Buffet was in eighth place. Like Mr Gates, Mr Buffet is an American. He is also a philanthropist and one of the

world's wealthiest people. For over 40 years Mr Buffet has run a company called Berkshire Hathaway. His company invests money in many other large companies. Mr Buffet has become famous for choosing the right companies to invest in and the best time to do it.

World's most admired people

1. Bill Gates	10.10%
2. Barack Obama	9.27%
3. Vladimir Putin	3.84%
4. Pope Francis	3.43%
5. Sachin Tendulkar	3.28%
6. Xi Jinping	2.86%
7. Narendra Modi	2.55%
8. Warren Buffet	2.24%
9. Amitabh Bachchan	2.01%
10. Abdul Kalam	1.63%

Source: YouGov

The four other people in the top ten are all from India. Sachin Tendulkar is a popular former cricket player, Narendra Modi leads one of India's largest political parties, Amitabh Bachchan is a film actor and Abdul Kalam is an Indian scientist. He was also the country's president between 2002 and 2007. ■

FAMOUS STATUE DAMAGED BY STORM

The stone figure of *Christ the Redeemer*, in Brazil, is one of the most famous statues in the world. On 17th January officials said that during the night, lightning had damaged the statue's right hand. The thumb had been chipped. Last month another lightning strike damaged the middle finger of the same hand and the statue's head.

The statue of *Christ the Redeemer* is on top of a mountain called Corcovado (in Portuguese this means 'hunchback'). The mountain overlooks Rio de Janeiro. This is one of Brazil's largest cities. Most

people in Brazil are Christians who follow the Roman Catholic faith. The statue is of Jesus Christ with his arms outstretched. In the Christian faith Jesus Christ is the Son of God.

The statue's design is in a style that is called Art Deco. This design style was very popular in the 1920s and 1930s. It was used for many things including buildings, jewellery and different types of art. For example, many of the skyscrapers built in the 1920s in New York City, in the USA, are Art Deco buildings.

Christ the Redeemer stands on a large base, or pedestal. Not including the base it is 30 metres (98 feet) tall. The statue was built between 1922 and 1931. It was made from soapstone and reinforced concrete. This type of concrete is extra strong. Soapstone is a soft rock that can be carved easily. Around two million tourists visit the statue each year. Most travel by a specially built train that goes to the top of the mountain.

In recent times the statue has been struck by lightning four or five times every year. Many people believe that lightning storms over the city are becoming more frequent. Some officials believe this is because the city has got bigger. As Rio de Janeiro has grown, more buildings and streets have replaced plants and trees. This makes the air above the city warmer. Pollution from cars, trucks and buses also increases the air temperature. This extra heat, the officials say, helps to create more lightning storms.

Because soapstone is quite soft it is easily eroded, or worn away. Two years ago, the statue's face and hands were repaired. Local church leaders look after the statue. They have a supply, or stock, of the soapstone that was originally used to make the statue. Repairs to the statue's hand

and head began on 21st January. The church leaders expect it to cost US\$1.8 million (£1.1 million).

Around 2,200 years ago a person called Philon made a list of what he thought were the 'seven wonders of the world'. He lived in Byzantium, which is now in modern day Turkey. His list included large Ancient Greek statues and temples. The only one of Philon's seven wonders of the world that can still be seen is the Great Pyramid of Giza, in Egypt.



Christ the Redeemer, in Brazil

In 2007 an organisation based in Switzerland asked people to vote for 'the new seven wonders of the world'. Rio de Janeiro's *Christ the Redeemer* was one of the seven that were eventually chosen. ■

DOOMSDAY CLOCK UNCHANGED

The *Bulletin of the Atomic Scientists* is an American online magazine, or publication. It is well-known for its 'Doomsday Clock'. Each year the *Bulletin* makes an announcement about the clock's time. On January 14th it said the Doomsday Clock was still at five minutes to midnight. This means that the clock has not moved over the last 12 months.

The Doomsday Clock was set up in 1947. It is a [symbol](#) and not a real clock. At first it was set at seven minutes before midnight. How near the clock's hands were to midnight

was meant to represent the likelihood of a nuclear war.

A group of American nuclear scientists began writing the *Bulletin* soon after the Second World War (1939 – 1945) ended. Four months earlier, American military planes had dropped atomic bombs on the Japanese cities of Hiroshima and Nagasaki. Japan surrendered a few days after the cities were destroyed.

The bombing of the two Japanese cities was the first and, so far, only time that atomic, or nuclear, weapons have been used in a war. The scientists who set up the *Bulletin* had helped to design these weapons.

The scientists believed that everyone should be told about the danger of nuclear weapons. They wanted to explain that these weapons could destroy all humanity, or mankind. This was why they started the *Bulletin*.

However, in recent years, the *Bulletin* has included other things that it thinks may be a threat to mankind. These include climate change and new technologies. New technologies, such as genetic engineering and [nanotechnology](#), can do many good things. Curing diseases and making new types of energy are examples. Yet, if a man-made virus, or military robots, were to get out of control, the *Bulletin* believes they could also threaten humanity.

Throughout each year scientists working for the *Bulletin* meet with other experts. They talk about the different threats and chances of them happening. The *Bulletin* then decides whether to move the Doomsday Clock's hands. They can go forwards, backwards, or stay where they are. Moving the hands forwards means the threat is increasing. Moving them backwards means it's decreasing. The clock

last changed two years ago. It had been six minutes to midnight. But the *Bulletin* moved it forward by one minute.

From when it was first set up, the clock has gone backwards or forwards 20 times. Since 1991, the minute hand has moved forward by 12 minutes. One of the main reasons for this is that there are still around 20,000 nuclear weapons in the world. Most belong to the USA and Russia.

The closest the Doomsday Clock's hands have come to midnight was in 1953. Then, they were only two minutes away. At that time the USA and the Russian-led Soviet Union were testing many new types of nuclear weapons.



The farthest the clock's minute hand has been away from midnight is 17 minutes. This was when the Cold War (1947 – 1991) ended. The Cold War was not a proper war. The name is used to describe the time when the Russian-led Soviet Union and the USA, together with its allies in Western Europe, were enemies. ■

REFERENDUM RESULT IN EGYPT

A referendum, or vote in which all adults could take part, was held in Egypt on 14th and 15th January. The vote was to decide whether Egyptians agreed to a rewritten, or redrafted, constitution. A country's constitution is the laws, or rules, by

which it is governed. This was the third 'constitution referendum' in Egypt in the last three years.

At the beginning of 2011 there were large street protests in Cairo, the capital of Egypt. Those taking part demanded that Hosni Mubarak step down. Mr Mubarak is a former air force commander. He had been Egypt's president for 30 years. The protesters accused Mr Mubarak and government ministers of being corrupt and dishonest. They wanted proper elections to be held so they could democratically elect new leaders.

The large street demonstrations continued for several weeks. After Mr Mubarak discovered that he no longer controlled the army and police, he agreed to stand down. The army took over and promised that elections would be organised. Mr Mubarak was arrested. He was put on trial for corruption and ordering the police to shoot at protesters.

Elections for Egypt's parliament took place at the end of 2011. The Muslim Brotherhood won far more seats than any other party. This organisation is both a religious and political group. The following year a presidential election was held. Mohammed Morsi won. Mr Morsi is also a member of the Muslim Brotherhood.

Soon after Mr Morsi became president he declared that he would have extra powers. He also announced that a new constitution would be written. Most of those who worked on the new laws were Muslim Brotherhood supporters.

Many Egyptians were angry when they discovered that the new constitution included a number of religious laws. People began to criticise Mr Morsi for not acting for the whole country. They accused him

of favouring Muslim Brotherhood supporters and ignoring everyone else. Others complained about the economy. They said Mr Morsi and his ministers were doing nothing to improve it.



General Sisi

Last June, one year after Mr Morsi became president, millions of people took part in huge street protests in several cities. General Sisi, the leader of the Egyptian army, then decided to take over. On his orders Mr Morsi and other senior Muslim Brotherhood members were arrested. Many Egyptians, especially those who dislike the Muslim Brotherhood, are happy with what the army did. Yet others said it was wrong for the army to depose an elected president.

General Sisi suspended the new constitution, which included the religious laws. He appointed a senior judge, Adly Mansour, as Egypt's temporary leader. Mr Mansour, the general said, would arrange for the constitution to be rewritten. At the end of 2013 General Sisi banned the Muslim Brotherhood. Many years ago Mr Mubarak had done the same thing.

The latest constitution has had the religious laws removed. It says the president can only be elected for two four year terms. Islam remains the state religion. Yet people may follow other religions if they wish. Men and women are to be equal.

No political party can be based on race, religion or separate areas of the country.

As a protest Muslim Brotherhood supporters refused to vote in the referendum. Of those who did, around 98% voted 'yes' to the new constitution. However, the turnout was quite low. Only 38.6% of adults who could vote did so. Now the constitution has been approved there will be new elections for a president and parliament. ■

'NO SURRENDER' SOLDIER DIES

Hiroo Onoda died in Japan on 16th January. He was 91 years old. During the Second World War (1939 – 1945) Onoda was an officer in the Japanese army. Yet Onoda did not surrender until 1974, or nearly 30 years after the war had ended.

In 1941 Japan launched a surprise attack on the American naval base at Pearl Harbour, in Hawaii. This attack marked the beginning of the Second World War in the Pacific.



Hiroo Onoda as a young soldier and in later life, in Japan

During the next four years Japanese forces occupied several other Asian countries such as Malaysia, Burma (now also known as Myanmar) and the Philippines. In Burma the fighting was mostly against soldiers from the UK. In parts of the Philippines and several Pacific islands there was fierce fighting between American and Japanese soldiers. By 1944 Japan was losing the war. Its leaders eventually

surrendered in 1945. This was after the USA had dropped atomic bombs on the Japanese cities of Hiroshima and Nagasaki.

In 1944 Onoda was sent to Lubang Island in the Philippines. There he met up with a group of Japanese soldiers. Onoda had been ordered not to surrender. Soon after he arrived American forces captured the island. Most of the Japanese soldiers were killed or surrendered. Onoda and three others managed to escape. Of the four, Onoda was the only officer. He ordered the other three soldiers to follow him. They went to hide in the mountains in the middle of the island.

Onoda's small group then began to carry out guerrilla attacks. They would shoot at local policemen and farmers. They also set fire to some of the farmers' crops. After Japan surrendered in 1945 leaflets were left

in the forests. Written in Japanese, they said the war was over and the soldiers should surrender. However, Onoda did not believe that Japan could have lost the war so quickly. He was sure the leaflets were a trick. From the soldiers' hideout in the mountains, Onoda continued to organise small attacks.

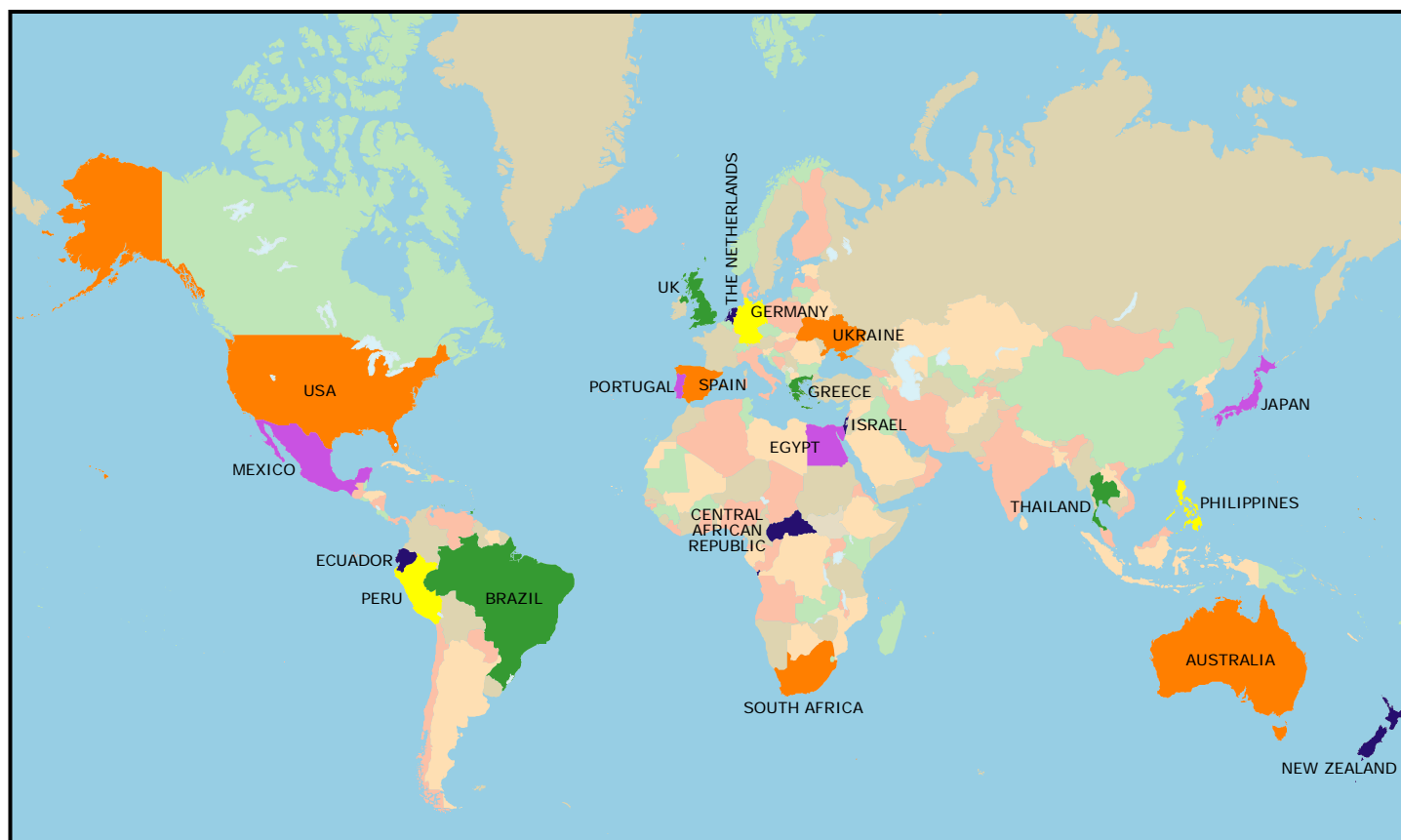
In 1950, one of the Japanese soldiers left the group. He stayed in the forest on his own. After six months he decided to give himself up. Later, family letters, pictures and Japanese newspapers were dropped by plane for the other three to find. Yet again Onoda thought it was a trick. One of the Japanese soldiers was shot and killed by the police in 1954. Another died in a shootout in 1972. Then Onoda was the only one left.

In 1974 a Japanese man decided to go to Lubang Island to look for Onoda. To the surprise of many he

found him after four days. The two men became friends. Onoda said he would surrender but only if he were ordered to. Furthermore, the officer who sent him to the island in 1944 had to give him the surrender order. The former officer was found. By this time he was working in a bookshop in Japan.

The former officer travelled to Lubang Island in 1974. After meeting Onoda he ordered him to surrender. When Onoda left the forest he was still wearing his army uniform. He was also carrying his rifle and sword.

While Onoda had been on Lubang Island, he and his group had killed about 30 people. However, the Philippine president agreed to pardon him. Then, 29 years after the war ended, Onoda returned to Japan. The Japanese government gave him his soldiers' pay for the time he had spent on the island. But Onoda was not happy



living in Japan. He said the country had changed. Onoda decided to go to Brazil where his brother lived. There he worked on a cattle farm.

Onoda returned to Japan in 1984. He then set up and ran outdoor camps for younger people. In 1996 Onoda returned to Lubang Island. During his visit he gave US\$10,000 (£6,000) to a local school. ■

WHO DISCOVERED AUSTRALIA?

Some people believe that a very old drawing could 'rewrite Australian history'. The small picture was discovered in a 500-year-old Portuguese prayer book. The hand drawn image looks like a kangaroo. These animals are found only in Australia.

Humans are believed to have first arrived in Australia between 48,000 and 42,000 years ago. Today, the descendants of these people are known as Aborigines or Indigenous Australians.



Possible kangaroo drawing in prayer book
(Enluminures Gallery)

It's thought that the first European to land on the Australian continent was Willem Janszoon (1570 – 1630). He was a Dutch explorer. Janszoon's ship, called the *Duyfken*, arrived on the north coast of Australia in 1606. Then, the part of Europe where Janszoon came from was called Holland. Today it is known as the Netherlands. After 1606 Australia was called New Holland for many years.

During the late 1500s and the 1600s the Dutch, the Spanish and the Portuguese were great seafaring nations. Dutch and Portuguese explorers sailed around the southern tip of Africa and into the Indian Ocean. In later years many ships from these countries followed the same routes. They collected spices from places like India and Indonesia. These spices, such as pepper, cinnamon and ginger, were worth a lot of money in European cities.



Possible Aborigine drawing in prayer book
(Enluminures Gallery)

A gallery in New York, in the USA, recently acquired the old prayer book, which has the picture of a kangaroo. The gallery is called Les Enluminures. It specialises in old manuscripts and jewellery. It's thought that the pocket-sized prayer book belonged to a Portuguese nun. Experts believe the book was made in Portugal sometime between 1580 and 1620.

As well as a kangaroo there is also a tiny drawing of a man in the prayer book. He is naked above the waist and has leaves in his hair. Some people think this could be a picture of an Indigenous Australian.

In the past some historians have said that the Portuguese probably discovered Australia long before the Dutch. These historians think the Portuguese may have made a map of part of Australia around 1522. However, at that time they often kept the places they had discovered a secret. This was because they did not want other countries to know about them.

If the picture is of a kangaroo it may mean that the person who drew it had travelled to Australia. Another possibility is that the artist spoke with Portuguese sailors who had seen kangaroos. Some think the tiny drawing shows that the Portuguese were the first Europeans to reach Australia. Yet others disagree. They say the drawing could be of a different animal such as a deer. Kangaroos have long tails, but in the drawing the animal's tail is not shown.

In 1770, Captain James Cook (1728 – 1779) and his crew were the first Europeans to see and land on Australia's east coast. On behalf of Britain, Captain Cook claimed ownership of Eastern Australia. In 1788 other ships from Britain arrived to set up a new colony. The place they chose became the city of Sydney. By this time the continent was called *Terra Australis* (which means 'South Land'), or Australia. Over the next 100 years the British took over the rest of Australia. ■

SURPRISING MIGRATION

Scientists in the UK have been studying the red-necked phalarope. This type of bird is only 18 centimetres (seven inches) long. The scientists managed to work out where some of the birds fly to every year. They were surprised. This is because the small birds' annual migration is one of the longest in the world.

During the summer in the northern hemisphere red-necked phalaropes live in wetlands. At this time of year the birds are found in the Arctic regions of Russia, Scandinavia, Canada, and Alaska, which is part of the USA. For the much colder winter months the birds fly south to warmer parts of the world.

The birds breed while they are in the Arctic. The males incubate, or hatch, the eggs and feed the chicks. When in the Arctic their plumage, or feathers, are whitish on their underside and dark grey above. They have red and white coloured feathers around their necks. In winter months the birds are much whiter. The small birds feed on insects and tiny shrimp-like creatures, which they catch in the water.



Red-necked phalarope (Andreas Trepte)

In the summer most red-necked phalaropes live in northern Russia and Canada. However, about 50 of them breed in the Shetland Islands. These islands are one of the most northerly parts of the UK.

The scientists managed to attach tiny lightweight tags, or tracking devices, to ten of the Shetland birds. These tags are called geolocators. They are not big enough to transmit GPS signals. Instead the tags track a bird's location, or where it is. They do this by recording the times of sunrise and sunset.

The scientists caught one of the birds with a geocator after it returned to Shetland. They studied the information recorded by its tracking device. The scientists were amazed to discover that the bird had flown all the way to Ecuador and Peru, in South America, and back again. This is a distance of about 25,750 kilometres (16,000 miles).

Northern Scandinavia (or the northern parts of Norway, Sweden

and Finland) is not far from the Shetland Islands. The red-necked phalaropes that spend the summer in this part of the world fly to the Arabian Sea for the winter.

Before tagging them, the scientists thought the Shetland birds also flew to the Arabian Sea. Yet the tags show they migrate to the same places that red-necked phalaropes from northern Canada and Alaska go to. This is a far longer journey. What's more, the Shetland birds cross the northern Atlantic Ocean. So they have to fly against strong winds.

The geolocators showed that the Shetland birds fly to Iceland and then onto Greenland. From there they go to Canada. The birds follow the east coast of the USA to the Caribbean. They then fly across Central America before arriving on the coasts of Ecuador and Peru. When spring arrives in the northern hemisphere the birds return to the Shetland Islands. One scientist joked that the Shetland red-necked phalaropes must be 'stupid'. This is because flying to the Arabian Sea and back would be much easier. ■

ANTARCTICA'S 'GRAND CANYON'

Last year researchers announced that they had found a huge canyon under the ice in Greenland. Now a team of scientists say they have discovered another one in Antarctica. Like the one in Greenland the Antarctic canyon is completely covered by ice.

A canyon is a deep valley, or gorge. It has very steep sides. Canyons or gorges covered by ice are often called subglacial valleys.

Canyons are usually made, over many millions of years, by a river slowly eroding the rocks. However,

the deep valley under the Antarctic ice sheet was created by ice. Canyons made by rivers are shaped like a 'V'. Those formed by ice are 'U' shaped. Running water and not ice made the subglacial valley in Greenland.



Satellite picture of Antarctica

The most famous canyon in the world is the Grand Canyon. It is in the state of Arizona, in the USA. The Grand Canyon was thought to be one of the longest and deepest of its kind in the world. It has a length of 446 kilometres (227 miles). However, the recently discovered subglacial valley in Greenland is much longer. Its length is 750 kilometres (466 miles).

In places the Grand Canyon is 1.6 kilometres (one mile) deep. The River Colorado flows through it. Geologists, scientists who study rocks, believe it has taken the river nearly two billion years to create the canyon. The Antarctic subglacial valley is even deeper. Its greatest depth is three kilometres (1.9 miles). In places the bottom is two kilometres (1.2 miles) below sea level. The valley is up to 24 kilometres (15 miles) across and 300 kilometres (186 miles) long.

The scientists have spent three summer seasons in this part of Antarctica. Information from satellites, small aircraft and snowmobiles led to their discovery. Snowmobiles are vehicles that can travel quickly across ice and snow. The aircraft

and snowmobiles carried special radar equipment.

Radar signals can travel through ice. They bounce back after hitting rocks underneath it. The time taken for the radar signals to return to the aircraft and snowmobiles was recorded. From this information the scientists worked out the shape of the land deep below the ice.

Part of the subglacial valley in Antarctica contains a large lake. So this lake is also under a deep layer of ice. Called Lake Ellsworth, it was discovered in 1996. However, it was not known that the lake was part of a very long and deep subglacial valley. Lakes deep under the ice are called subglacial lakes. It's thought that there are over 300 of these lakes in Antarctica. The water in the lakes does not freeze. This is because of [geothermal](#) heat, which comes up from the centre of the Earth.



Grand Canyon, in the USA (John Fowler)

A long time ago, all the Earth's continents used to be one large landmass. This landmass is known as Pangaea. Over millions of years Antarctica broke away from what was to eventually become Australia, India, Africa, and South America. This happened around 80 million years ago. Antarctica then gradually moved towards the South Pole. This meant it slowly got colder and colder.

Eventually, Antarctica became completely covered in thick ice. However, before this, for many millions of years, it would have

had a much smaller ice field, or amount of ice. (Today northern Russia and Canada have similar ice fields in their Arctic regions.) During this time glaciers, or large slow moving rivers of ice, would have eroded deep valleys. This, the scientists say, is probably how Antarctica's 'Grand Canyon' was formed. ■

DEATH OF ALEXANDER THE GREAT

The death of Alexander the Great is a mystery. For many years historians have wondered how and why he died. Now two researchers from New Zealand believe they know what may have killed him.

Alexander the Great (356 – 323 BCE) was born in Pella, which is now in northern Greece. Both he and his father, Philip the Second, were kings of Macedonia. Macedonia, or Macedon, was a state in the northern part of Ancient Greece.

Many people believe that Alexander was one of the world's greatest military commanders. It's thought that he never lost a battle. In 334 BCE Alexander led a large army into what is now modern day Turkey. His army was made up of soldiers from Macedonia and several other Greek states. Alexander was never to return to Macedonia.

Alexander's army [conquered](#) Egypt. There, the Macedonian leader founded the city of Alexandria. Alexander then travelled eastwards across the Middle East. He defeated other larger forces including the Persians. Alexander's army eventually reached the Himalayan Mountains. Seven years after they left Macedonia, many of Alexander's soldiers wanted to go back. By this time Alexander had created a huge empire.

It stretched from the Mediterranean Sea to where Pakistan is today.

In 323 BCE Alexander arrived back in Babylon. This was where he planned to build his capital city. Today the ancient ruins of Babylon are about 85 kilometres (53 miles) from Baghdad, the capital of Iraq. After a feast, or large party, Alexander suddenly became very sick. Ancient records say he was unable to walk or speak. The beating of his heart, or his heart rate, slowed down. After being ill for 12 days Alexander died. He was 32 years old.

Alexander had been wounded several times. He was also known to drink a lot of alcohol. Some historians think his injuries and drinking were the cause of his death. Others believe he died of a disease such as malaria or typhoid. A virus carried by mosquitoes causes malaria. Typhoid comes from eating or drinking something infected with a type of bacteria. However, many are sure that the famous military leader was deliberately poisoned.



Roman mosaic of Alexander the Great

One of the two researchers is an expert on toxicology, or the study of poisons. He says that it is unlikely that Alexander was given a common type of poison such as [arsenic](#). If this had happened Alexander would have died soon after becoming ill.

The researchers think Alexander died from white hellebore poisoning. White hellebore is a type of plant. It comes from many of the

places that Alexander's army conquered. The plant grows to a height of 1.5 metres (five feet). The ancient Greeks knew about white hellebore. They believed that evil spirits and demons could get inside a person's body. Small amounts, or doses, of liquid made from white hellebore were supposed to get rid of them. Drinking a little of this liquid would cause vomiting and sneezing.

The researchers say that, before he died, Alexander's **symptoms** match white hellebore poisoning. They think a large bowlful of the poison could have been sweetened. Then, when he was drunk, Alexander swallowed all of it. After Alexander's death his empire was divided between his generals. ■

NEW SPYING RULES IN THE USA

On 18th January Barack Obama, the president of the USA, made an important speech, or address. During the speech he talked about new rules that government spying organisations, or agencies, would now have to follow.

Seven months ago a man called Edward Snowden passed secret information to two newspapers. The newspapers were *The Washington Post*, from the USA, and *The Guardian*, from the UK.

Mr Snowden had worked for an American organisation called the National Security Agency (NSA). He suddenly left his job and travelled to Hong Kong, in China. There he told the newspapers that the NSA had been secretly collecting certain types of **intelligence**. This included the telephone records of millions of people both in the USA and other countries.

The NSA, Mr Snowden explained, also collected details on

how people used the internet. A large amount of information, such as the records of millions of telephone calls, is often called metadata. People like Mr Snowden who take the risk of making secret information public are called 'leakers' or 'whistleblowers'. Mr Snowden is now living in Russia.

Mr Snowden told the newspapers that American spies were secretly listening to mobile phone conversations made by leaders from 35 countries. The spies were also reading these leaders' text messages. Secretly listening to, and recording, people's private phone calls is called surveillance. It is also known as spying, monitoring, bugging, eavesdropping, and wiretapping. Angela Merkel, the chancellor of Germany, and Brazil's president, Dilma Rousseff, were two of the people whose mobile phones were monitored.



Barack Obama, president of the USA

When they heard the news about what the NSA was doing many people complained. The bosses of the NSA and other spy agencies were angry with Mr Snowden. They said he should not have leaked the secret information. If Mr Snowden returns to the USA he will be arrested.

In 2001 an Islamic militant group, called al-Qaeda, carried out a number of terrorist attacks in the USA. The government of the USA was worried that more similar attacks were being planned. It wanted to catch the people who organised

them. To do this the government gave the NSA permission to secretly collect and record different types of communications.

The bosses of the NSA insist that collecting and searching metadata has prevented other terrorist attacks. However, they are unable to give any details. This, they explain, is because their work is secret. Many Americans have said that they do not believe the NSA bosses.

Mr Obama explained that telephone metadata records would still be collected. However, it would not be kept on databases run by government agencies such as the NSA. Instead a new organisation will be set up to look after it. The NSA will be able to search this metadata. Yet it must get permission from a judge. This means the NSA will have to tell the judge why it wants to do the search.

Mr Obama also talked about eavesdropping on mobile phone calls. He promised that American spy organisations would stop listening to mobile calls made by leaders of friendly countries, or allies.

During his speech Mr Obama praised the NSA and other American intelligence agencies. Because it is secret, he said, most people do not see or **appreciate** the important work they do. ■

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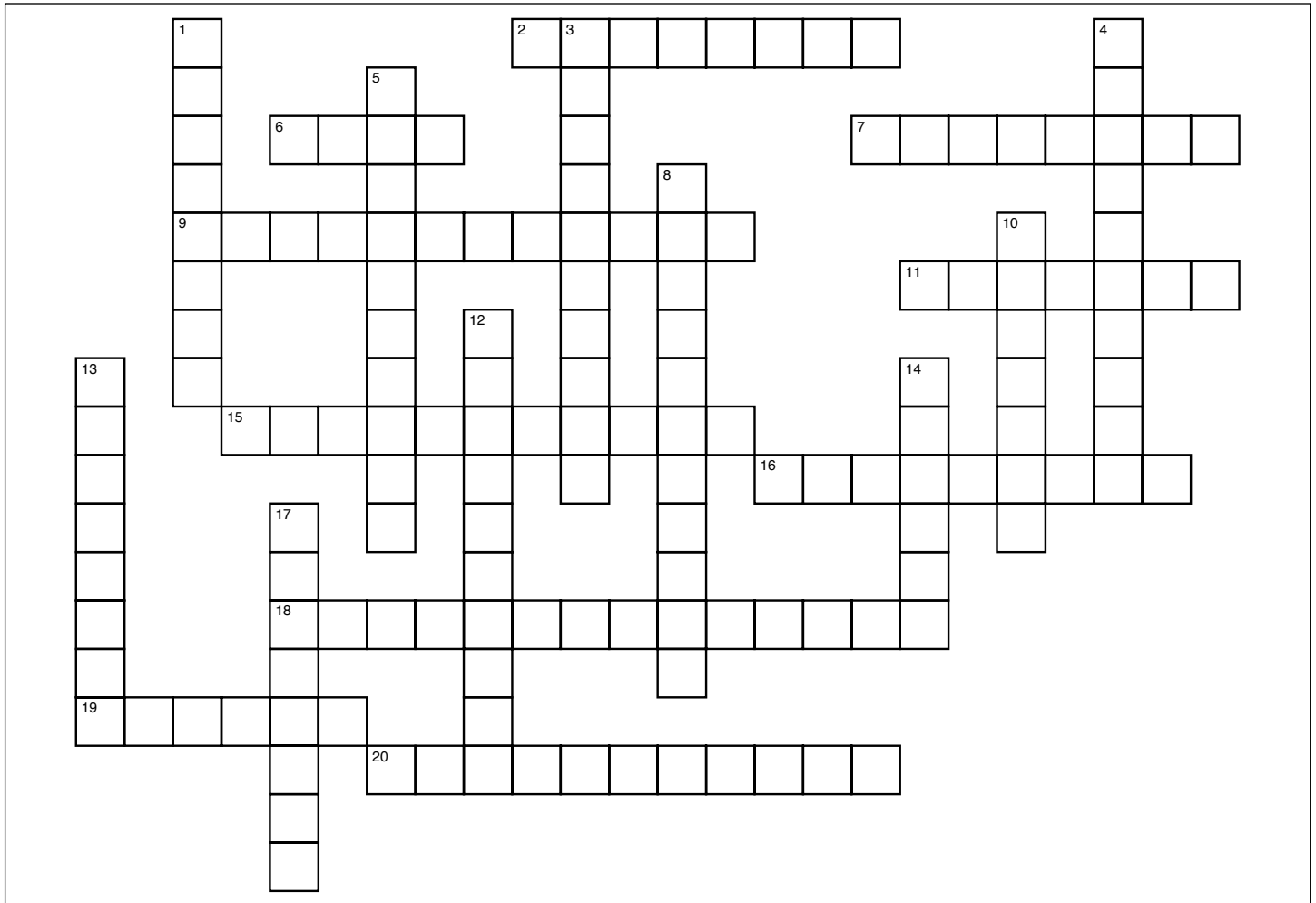
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ISSUE 215

GLOSSARY PUZZLE

INSTRUCTIONS: ① Complete the crossword. The answers are highlighted in orange in the news stories. There are 25 words highlighted and you need 20 of them to complete the crossword. ② Once you have solved the crossword go to the word search on the next page ➡



Across

- 2 Noun** The merciless killing of a large number of people
6 Noun A long period of unconsciousness, usually caused by disease or injury
7 Noun (Plural) The signs of an illness or medical condition
9 Noun Useful information that has been gathered about an enemy
11 Noun (Plural) Regulations that requires people to remain indoors at certain times, typically at night
15 Noun Deep sleep-like state that lasts for a long time
16 Noun A member of a small, unofficial army who fights by making surprise attacks
18 Noun A type of engineering that develops microscopic tools and machines by controlling the arrangement of separate atoms
19 Noun Something that has a special meaning or represents an idea
20 Noun (Plural) Old documents, papers or books, usually written by hand

Down

- 1 Noun** Got or obtained something so you now own it
3 Verb To recognise and like the qualities in something or somebody
4 Adjective Related to the heat inside the Earth
5 Noun (Plural) Pieces of electrical equipment that make a person's voice or music much louder
8 Noun Wooden planks and metal poles, used while building, repairing, or cleaning tall buildings
10 Noun A chemical element that is poisonous to humans and animals
12 Noun The systems for taking waste products and dirty water away from buildings to protect people's health
13 Noun (Plural) Heavy spears fired from a gun to attach ropes to something, used to catch whales
14 Verb To make clean by removing anything that may cause harm or illness
17 Noun Controlled what may be reported in the news and newspapers and what books and magazines can be sold.

ISSUE 215

GLOSSARY PUZZLE *CONTINUED*

N O I T A N R E B I H N S G A P G M
O A Y R L I Y D S T A P N I H A E A
I R N U U G R Y Q P C I Q A S C O N
T M K O L M M Q P O D O L L R Q T U
A A L K T B K R T L K L M A E U H S
T S F B O E E G O C I D Y A I I E C
I S X L U C C F S R G W X H F R R R
N A P C I I F H R Q A Q F S I E M I
A C V A O A T E N P B Y W H L D A P
S R T O C N U R K O R P A A P J L T
E E A S F G Z X G J L R B R M Q A S
K X L W A E K U G F P O D G A U C J
I W J E Z W Z G K O A U G L R E I U
M M H F C G I K O B M D R Y B J N L
X F Y R I U T N Z D Y X O I U J E U
R D N U U G S M O T P M Y S F Y S D
V D O C I M F M Q O J X P K R Y R M
I N T E L L I G E N C E W P W U A J

INSTRUCTIONS: ③ Find 19 of the 20 crossword answers in the word search. Words can go vertically, horizontally, diagonally and back to front. ④ After finding the 19 words write down the 20th (or missing) word under the puzzle.

Demics are tokens that Individual and Family Subscribers can earn. They are awarded for answering this Glossary Puzzle and/or the Daily News question – accessible by logged in users – correctly. Demics earned can be used by Family and Individual Subscribers in the Newsademic online store.

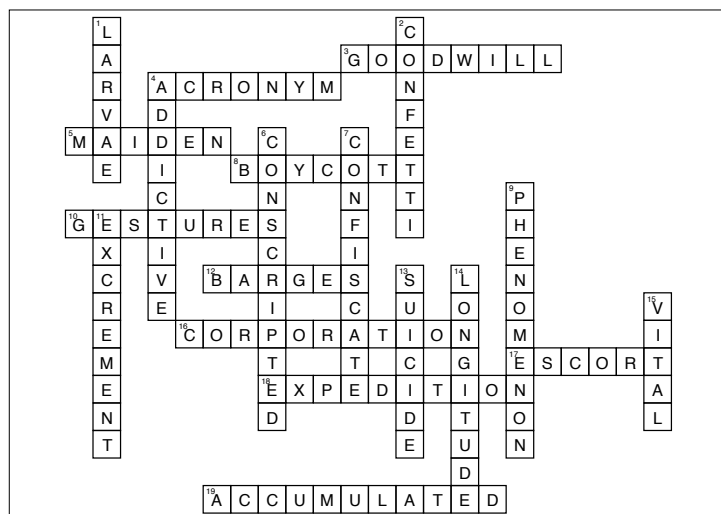


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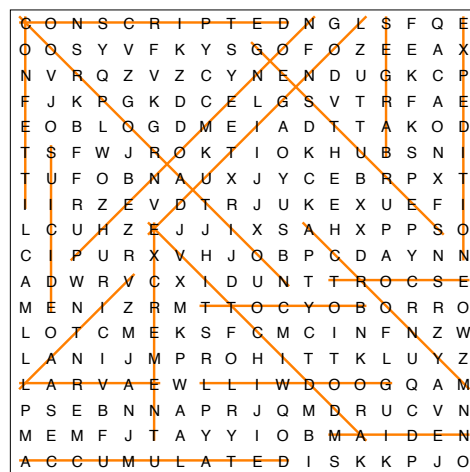
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If you wish to earn additional Demics log in to www.newsademic.com, go to the Prize Competitions area and submit the missing word. Puzzle entries must be submitted by 10 pm on 5th February 2014 (GMT/UTC).*

MISSING WORD ANSWER =



ISSUE 214 ANSWERS



C O N F I S C A T E